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CLAIMS

1   1.   A method for detecting targets in a plurality of target classes, the method
2   comprising:

3   configuring an over-the-horizon radar in a staring mode to monitor an area of
4   interest;

5   transmitting a radar beam on a fixed bearing at a fixed bandwidth and a fixed
6   waveform repetition frequency (WRF) to illuminate the area of interest;

7   receiving and pre-processing radar backscattered energy from the area of
8   interest to generate radar data;

9   storing the radar data in a plurality of buffers; and

10   processing the buffered radar data in parallel channels to determine positions
11 of targets present in the area of interest, each channel corresponding to a respective
12 one of the target classes.

1   2.   The method of claim 1 wherein buffering the received radar data comprises
2   buffering the received radar data in a first buffer and copying the received radar data
3   in the first buffer into a second buffer.

1   3.   The method of claim 1 wherein the fixed bandwidth and the fixed WRF are
2   selected in response to at least one of anticipated target Doppler shifts, ionosphere
3   characteristics, radio frequency interference, earth and ionospheric Doppler-spread
4   clutter magnitude, and required target position accuracies.

1   4.   The method of claim 1 wherein the area of interest comprises a dwell
2   illuminated region.

1   5.   The method of claim 1 further comprising displaying the processed radar data
2   from each of the parallel channels on a respective one of a plurality of detection
3   displays.

1   6.   The method of claim 1 wherein processing the buffered radar data in parallel

2   channels comprises separately automatically detecting and tracking, for each of the

3   target classes, the positions of targets in the area of interest.

1   7.   The method of claim 6 further comprising displaying the target position and

2   progress for targets in at least two of the target classes in the area of interest.

1   8.   An over-the-horizon radar system for detecting and tracking targets in a

2   plurality of target classes, comprising:

3   a transmitter to illuminate an area of interest;

4   a receiver having a plurality of receive beams to detect backscattered energy

5   from the area of interest, the receiver pre-processing the detected backscattered

6   energy to generate pre-processed radar data;

7   a plurality of buffers in communication with the receiver, each buffer adapted

8   to store the pre-processed radar data; and

9   a plurality of processors each in communication with a respective one of the

10   buffers, each processor adapted to process the pre-processed radar data for a

11   respective one of the target classes and provide class-specific target data.

1   9.   The over-the-horizon radar system of claim 8 further comprising a plurality of

2   detection displays each in communication with a respective one of the processors.

1   10.   The over-the-horizon radar system of claim 8 further comprising a plurality of

2   automatic detection and tracking modules each in communication with a respective

3   one of the processors, each automatic detection and tracking module being configured

4   for tracking targets in a respective target class.

1   11.   The over-the-horizon radar system of claim 10 further comprising a

2   geographic situation display in communication with each of the automatic tracking

3   modules and adapted to display target position and progress for targets defined in the

4   target classes.

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1   12.   A computer program product for detecting targets in a plurality of target

2   classes, the computer program product comprising a computer useable medium

3   having embodied therein program code comprising:

4   program code for pre-processing radar energy from an area of interest and

5   generating radar data in response thereto, the radar energy being backscattered energy

6   from an illumination of the area of interest by an over-the-horizon radar beam having

7   a fixed bandwidth and a fixed WRF;

8   program code for storing the radar data in a plurality of buffers; and

9   program code for simultaneously processing the buffered radar data in parallel

10   channels to determine positions of targets present in the area of interest, each channel

11   corresponding to a respective one of the target classes.

1   13.   The computer program product of claim 12 wherein the program code for

2   simultaneously processing the buffered data in parallel channels comprises a plurality

3   of program code modules adapted for simultaneous execution, each program code

4   module comprising program code for processing the buffered radar data in a

5   respective buffer to determine positions of targets present in the area of interest for a

6   respective one of the target classes.

1   14.   The computer program product of claim 12 further comprising program code

2   for displaying the processed radar data from each of the parallel channels on a

3   respective one of a plurality of detection displays.

1   15.   The computer program product of claim 12 wherein the program code for

2   simultaneously processing the buffered radar data in parallel channels comprises

3   program code for separately automatically detecting and tracking, for each of the

4   target classes, the determined target positions of targets in the area of interest.

1   16.   The computer program product of claim 15 further comprising program code

2   for displaying the target position and progress for targets in at least two of the target

3   classes in the area of interest.